The Interconnection Process:

Interconnection is the process of connecting a distributed generation system to the electric grid. Prior to connecting, the distributed generation system owner must obtain written approval from the local utility in the form of an Interconnection Service Agreement and subsequent Authorization to Connect. The owner of the system or customer should actually consult with the company before even the design and purchase phase of the project. This application is necessary to ensure that the system to be installed and interconnected to the grid meets all the voltage, frequency and other requirements but also to ensure the capacity is available on the circuit. In fact, this interconnection process is necessary to protect the reliability and safety of the electric grid. The Massachusetts Department of Public Utilities (DPU) regulates this process by requiring utilities to have consistent and standardized interconnection tariffs.

Specific to Lunenburg Applications:

Unitil's Massachusetts territory has over 40 circuits on its distribution system, emanating from 14 substations with a peak system load of about 100 MW. A large generating facility (2.5 MW) was installed on a circuit in 2013 which was supplied from a particular substation in Lunenburg. This substation supplies two circuits in the Lunenburg area. This generator was large enough to supply most of the daytime load supplied by the substation, during light load months. To accommodate for this large system, the customer actually had to pay for certain upgrades to the system to ensure the entire system remained safe and reliable. Since 2013, solar developers have been heavily marketing this area and as a result of those marketing efforts, more than 90 applications totaling almost 1 MW of generation has been added after the application of the 2.5MW facility. Normally, smaller household solar PV projects do not greatly impact a distribution system, but utilities can experience this problem when combined with larger installations like the 2.5 MW system that was installed in 2013. Until has provided the known solar developers in the area with a map of the saturated area. Unitil has even met with one solar developer who was heavily marketing in the area, to explain the issue and to see whether they would be willing to absorb some of the construction or study costs required to continue with active installations in the area. Although the developer declined that offer, they decided to slow their marketing efforts in the area but unfortunately applications continued to be filed on these two circuits. Since that time, Unitil has performed a general analysis and determined that the two circuits supplied from this substation are over saturated and that substantial investments in upgrades to the substation would be required to resume installations. Nearly ten applicants, including solar developers, have been notified of the situation and have been told that upgrades would be necessary. Per the standardized interconnection tariff, the customers applying to be interconnected are responsible for those system modification costs.

Massachusetts Interconnection Tariffs:

On January 23, 2012, the Massachusetts DPU established a Distributed Generation (DG) Working Group to develop recommendations for changes to the existing Interconnection Standards for Distributed Generation. This Working Group, which included representatives of the DOER, the Massachusetts Clean Energy Center, the distribution utilities, distributed generators, and customers, filed its final report in September, 2012. The details and timeline of the process were extensive but ultimately in May, 2013 the DPU approved the utility compliance tariffs which placed the newly proposed company interconnection tariffs into effect. One of the significant changes the working group unanimously recommended, and pertinent to the Lunenburg situation, was to increase the aggregate generating facility capacity on a circuit from less than 7.5% of circuit annual peak load to 15%. This change was necessary to allow for more projects to be interconnected, while still maintaining safety and reliability concerns, on any one particular circuit. Unfortunately in Lunenburg, we have exceeded even the new 15% threshold.

Next Steps:

Unitil has plans to approach large solar developers with open applications in the region with an offer to have them split the costs of the upgrades necessary in Lunenburg with the customers.